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AMERICAN GAS ENGINEERING JOURNAL

FORMERLY
AMERICAN GAS LIGHT JOURNAL

VOL. CXII., No. 20
WHOLE No. 3245

NEW YORK, SATURDAY, MAY 15, 1920

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Entered as second-class matter January 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

American
Gas Engineering Journal

FORMERLY THE AMERICAN GAS LIGHT JOURNAL

Vol. CXII, No. 20 NEW YORK, MAY 15, 1920 Whole No. 3245

Candor on Part of Gas Company Holds Public Good-Will in Face of All Efforts at Burrowing Under

Kings County Business Men and Local Press Comprehend Readily the Situation of a Company That Loses $1,500 Each Week That Passes

By W. A. FAIRSERVIS

Putting it up to the people to see that the rights of a public utility are safeguarded is perhaps a most radical step, particularly when a company is the subject of vicious, unfair attacks by politicians who are bent on forwarding their own political futures regardless of any havoc they may cause. Yet that is just exactly what Ralph Elsman, vice-president of the Kings County Lighting Company, Brooklyn, did and the response of the more than quarter million people served by that company was practically unanimous. Not only did the general public openly declare itself in favor of an increase in rates for the company, but its organized civic bodies, officered by hard-headed, shrewd business men openly went on record with resolutions endorsing the Kings County Lighting Company under Mr. Elsman's management, and also appointed committees to cooperate with Mr. Elsman in his efforts to fight for the rights of the company.

During this entire time the newspapers were printing news stories regarding the progress of the fight and also commenting editorially on the various developments. It is worth noting that all of the newspapers, with one exception, whose owner has ridden a hobby (incidentally ridden it almost to death) were openly in favor of the Kings County Lighting Company, and did not hesitate to help in the fight in every way possible. Proof of this assertion will be given later in this story.

Where can a parallel for this extraordinary situation be found? We venture to say never in the history of public utility corporations has such a condition arisen, certainly not within the memory of the present generation.

A question that naturally presents itself at this point is: How was this brought about? Perhaps the best way of presenting the history of this unique case will be to give the chronological development of the events together with the other developments that came as a natural consequence.

The first move was made when announcement was made to all of the builders, real estate operators, etc., that the Kings County Lighting Company was not in a position to take on additional business because it had been losing money at the rate of more than $1,500 weekly for nearly two years, and it faced even greater loss in the approaching months. The announcement took the form of a letter, which, because of its conciseness, and because it states the case not only of this one company but of the utility business as a whole, is printed here in full:

Gentlemen: On account of the inadequacy of the eighty-cent rate fixed by statute, this company has not been able in the past two or three years to secure new capital to enable it to make the necessary additions and extensions to its plant to provide for the growth of business. At the present time its plant facilities are greatly overtaxed. Unless and until it is relieved from the effect of the eighty-cent statute it will be unable to secure any new capital and is not warranted in taking on new consumers.

Since January 1, 1918, it has cost the company more than eighty cents per 1,000 cubic feet to manufacture and distribute gas without any return whatsoever upon the capital invested in its plant. The inability of the company to supply its consumers if the eighty-cent rate is to be enforced has been presented to the court in its suit to restrain the enforcement of the eighty-cent rate. If the company secures relief it will be in a position to increase its facilities and accept applications from new consumers.

We are sending you this notice in order that you may be fully aware of the conditions surrounding the operation of this company and may govern your building program in this district accordingly. As soon as the company is in a position to accept additional consumers you will be promptly notified.

I regret exceedingly to have to take this position, but we are forced to it by conditions beyond our control.

Yours very truly,
(Signed) RALPH ELSMAN,
Vice-President.

The next morning the newspapers were full of the story and carried not only the tale of the action of the Kings County Lighting Company, but also interviews with public officials who, without considering the matter or ascertaining the facts, at once issued statements containing dire threats of what would happen.

The position of the Kings County Lighting Company was well taken, however, and the action had not followed without careful forethought.

The public had already evinced considerable interest

as was attested by the passage of a resolution just five days before by a powerful civic organization that had become famed for its independence of thought and action. Mention might be made at this point that this association had never been friendly to public utilities; in fact, it had been vigorous in its condemnation of traction companies, gas and electric companies, and any that happened to stick its head above the water level.

The officers of the association, too, were business men who would be affected, not only in their homes, but in almost every case in their own firms by any change in rate. Yet the relations established by Mr. Elsman with them were such that his earnest plea, his clean-cut logic and self-evident candor brought this unanimous resolution as a response:

Resolved, It is the sense of this organization that we go on record that the Kings County Lighting Company should get a temporary increased rate to enable it to continue to serve the community.

CITIZENS' ASSOCIATION OF FORT HAMILTON AND BAY RIDGE.

A feature in connection with the presentation and passing of this resolution was the speech made by the author who ended his remarks by stating: "It would be a distinct disaster to the community were we to fail to act with all our power to avert this situation."

The resolution was addressed to the law-making body of the State and copies were sent to the municipal authorities, as well as to the Public Service Commission, charged with enforcing the public utility rules and regulations.

Widespread comment was caused by the resolution and the newspapers again showed their desire for fair play. Here is a typical editorial that came as a result of the work of the Kings County Lighting Company:

KIND TO A CORPORATION

The Citizens' Association of Fort Hamilton and Bay Ridge has a kind heart even for corporations. It has passed a resolution favoring an increase of gas rates in its territory. This it was moved to do by the pleas of the vice-president of the company, who recited the difficulties, under which the latter labored in its effort to produce cheap gas. It isn't often that a Board of Trade takes action in this direction. Generally the gas company is anathema in its eyes. However, in Bay Ridge the company and the residents are all neighbors, and have a community feeling which, in this instance, operates to the benefit of the gas company.—Brooklyn *Daily Times*, March 5, 1920.

The announcement to the builders, who, it appeared at first glance were threatened with ruin in their business, came as a bombshell and at once there was a series of conferences. Millions of dollars that were tied up in new buildings, it seemed, were going to be confiscated without any possible redress. Here it was that once again the policy of frankness adopted by Mr. Elsman came in good stead, for the builders turned to him for guidance.

Carefully explaining all of the developments which entered into the situation, Mr. Elsman told the builders that it remained with them to secure justice not only for themselves but also for the company.

Civic associations were active and another passed a resolution calling for justice to the company. This one reads:

Resolved, That the Public Service Commission be asked to give favorable consideration to the plea for a higher rate for the price of gas furnished by the Kings County Lighting Company until the high price of labor and material decreases.

GRAVESEND BEACH BOARD OF TRADE.

That the members of the association were impressed by the seriousness of the situation is shown by the fact that the resolution broke one of the by-laws of the association, and it was introduced at the request of the president, who was formerly a member of the State Senate, and was ambitious to return to that body. But he saw the way the wind was blowing, the tremendous public sentiment that was sweeping the district in favor of the company, and he knew that it had become a popular move. To digress for just a minute, we would ask the reader to imagine a fight for increased rates for a public utility becoming the subject of a popular campaign by its consumers!

A committee was formed representative of the builders, and it was found that more than twenty million dollars' worth of buildings were involved. However, the operators decided that they wanted to aid the company in its stand, and they made an ardent plea to the Public Service Commission asking that relief be granted and the rates of the company raised.

At about this time the oil shortage became acute and the Kings County Lighting Company seriously involved, once again made a wide plea for support. The newspapers were keenly interested and the New York *Sun* had this editorial comment to make:

THE GREAT GAS CONSPIRACY

At the hearing before Public Service Commissioner Nixon on the complaint of gas companies that they were running short of oil, an assistant corporation counsel charged that "the gas companies had agreed to raise the cry of an oil shortage in order to influence litigation started by the companies to get rid of the 80-cent gas law so a higher rate might be imposed."

At about the hour when this charge of dishonesty was being made the Navy Department was opening the bids received in response to its advertisement for 5,000,000 barrels of oil. These bids offered, in all, only 660,000 barrels.

Perhaps the gas companies, to suit their devilish purpose, induced all the oil companies in America to pretend that there is a shortage of petroleum.

At the same time the Brooklyn *Citizen* responded to a suggestion with the following:

PLIGHT OF THE GAS COMPANIES

The hearings on Tuesday and yesterday before Public Service Commissioner Nixon developed the fact that, in addition to their regular troubles, the gas companies find it difficult to replenish their stocks of oil. General complaint was made that the maintenance of the 22-candlepower standard was a waste of millions of gallons of oil. Commissioner Nixon intimated that if there is no other way out he would recommend a reduction in candlepower to the British thermal unit.

The situation of the gas companies is almost as tragic as with the traction companies. They are held down by the authorities to a rate adopted prior to the war which is confessedly, in view of increased cost of labor and materials, nothing short of confiscatory. The Kings County Lighting Company, which supplies the Thirtieth Ward in this borough, is unable to find the capital required, $800,000, to extend its mains. This is a serious matter, in view of the great scarcity of homes, especially in a growing section like Bay Ridge. Builders will not undertake to build up the vacant spaces unless they are assured of gas.

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European Gas Industry Organizes Coal Supply

British Coal a Necessity to German Works Operation—Gas Prices Rise All Over Europe

By L. W. ALWYN-SCHMIDT

Among the many problems that had to be faced by the German gas works during the war, that of bringing coal to those of the works not in easy reach of the coal fields was one of the most outstanding. The European continental coal belt is comparatively narrow, and coal is found in large quantities only in two parts. By far the most important coal fields of Europe lie in northwest Germany, northeast France, and southern Belgium. This coal region reappears further south in the Sarre Valley. In the east of Europe coal is found in Silesia and parts of Poland and Bohemia. The principal centers of gas consumption, however, are located away from the coal fields, and coal, therefore, has to be transported to the gas works by rail. To take, for instance, as important a center as Berlin. Berlin requires during the winter months 180,000 tons of coal for gas production every month. Pre-war experience had shown that this quantity cannot be handled by the available rail facilities. The Berlin gas works, therefore, have taken to a very practical means of filling up their supplies by making use of the inland canals of Germany, and building up their coal reserves during the summer with the aid of the English gas coal. During the war this was, of course, impossible, and the last year has shown very effectively the inadequacy of the German coal transportation system if not supported by English coal. During the year 1918 the Berlin gas works held a reserve of 150,000 tons on July 1, and were able to increase this reserve to 180,000 tons during the late summer. This was done by forcing all available German coal to Berlin. On July 1, 1919, only 26,000 tons of coal were available. It seems that the English coal industry will make use of this situation by providing for a coal delivery service to Germany during the summer months when the canals are open by which the gas works that can be reached will be enabled to make use of English coal for the purpose of strengthening their reserves. This will help to relieve the rail situation in certain districts, and German coal may pass on to other regions which can be more conveniently supplied from the German mines.

The situation seems to be especially serious in the eastern parts of Europe where Silesian coal is delivered as a rule. The uncertainty about the outcome of the plebiscite has had a dampening effect on production in these mines, and as the result there is little coal only to be had in the large eastern European cities. Danzig, which is to be one of the most important ports of the Baltic, is said to have in hand a few days' supply only, and similar conditions are reported also from other localities. In South Germany conditions are not much better. Such cities as Munich and Nuremberg are going along with supplies of only a few days. Steps have been taken, of course, to make supplies available first to the gas works, and the plan of the coal commission for the supply of coal to the gas works is certainly admirable enough, lacking only one essential feature, the possession of coal.

French Gas Industry Faring Little Better

The French gas industry apparently is not faring much better. Most gas works operate with coal reserves that would be considered unsafe under normal conditions, and which are often much worse than during the days of the war. The transportation problem of gas coal is very much complicated by the fact that all the French coal is found in the eastern provinces of the republic. Coal, therefore, has to be moved westward, and there is little chance to find return freights from the western cities, as also most of the raw materials consumed by the industry in the eastern provinces are either found locally, as iron, or imported from the north, as cotton, etc. Before the war this situation was somewhat relieved by English coal imports, and English coal is still coming into the country. The French, however, have the desire to make their country independent from foreign coal supplies, and the period of transition required for this purpose naturally cannot pass without causing some further disorganization of the internal economic balance of the country. Hence there is trouble with the coal supplies, and the French gas works are rather discontented with the present situation.

Also England has her coal problems, and the government is busy to combine general and well-meant "policies" with the practical demands of the coal consumers, including the gas industry. The newest freak of government control is a demand to separate the accounting for gas used for domestic and for industrial purposes. How it is to be done is not said in the government order. But our English contemporary, the *Gas World,* is sure the government and the board of trade will muddle through with the assistance of the gas industry. But the gas industry is ready to burst its pent-up feelings and to let fly at somebody. Says the *Gas World*: "The gas industry is concerned with keeping up the supply of gas to all its customers and not with the filling up of forms and differentiating between domestic and industrial gas. But that is what the gas industry has to put up with, despite all that it has done for the empire." It seems, therefore, that the memory of empires is just as short as that of republics. To sugar the bitter pill of more officialdom the order which causes the displeasure of the English gas men also holds out a possibility for a reduction of the price of coal at the rate of $2.50 normal exchange which seems to be a sufficient inducement for an increased literary effort. The National Gas Council is of the opinion that a reduction in the price of gas will be possible in the case of a number of English gas enterprises.

Many Peace Problems for Solution

The English gas industry is busy discussing its new peace problems. These are of great multitude, and only the most pressing come up to consideration. Some are of particular interest also for the American gas industry as, in fact, for the gas industry of all the world. One of these problems deals with the supply of two qualities of gas for lighting and industrial use. No actual experiments have been made yet either in England or elsewhere, but English expert opinion holds that the plan can be executed by collecting a number of industrial consumers around the gas works and supply them with a high pressure low-grade gas at cheaper rates as than charged for lighting. The idea appeals to the minds of many gas men, but it has certain disadvantages that will have to be overcome before it can be made a commercial possibility. There is, no doubt, the need for a double pipe line which might easily make distribution uncompetitive. Also the manufacture of two grades of gas would add to its cost. It has, therefore, been proposed (not in England) to experiment with the use of gas which is diluted by the consumer. This would leave conditions in the gas plants as they are now, and no change would have to be made in the distribution system. All that is required would be a small gas degenerator in the factory through which gas could pass. How this could be devised is a matter for the engineers to say, but the possibility of devising the necessary equipment cannot be denied.

Another problem now under discussion is that of pit head carbonization. The English Government intends to build a number of large electrical plants in the immediate neighborhood of the coal mines to eliminate the necessity of shipping coal, and this no doubt has also set going the minds of gas engineers upon the same problems.

It is held in England that the carbonization of the coal near the pits and the transmission of the gas might be very well an economic feasibility, were it not for the fact that the gas industry owns to-day an enormous carbonization equipment that would become absolutely useless.

Gas men themselves seem to be rather skeptical to the proposal.

Much energy, no doubt, is wasted to-day when coal is transported for many miles to the gas works, but the high cost of building the required large mains seems to be prohibitive in the beginning, quite apart from the fact whether our technical knowledge is sufficiently developed to construct a pipe line strong enough to carry gas, for instance, from the Midlands to London.

As an alternative for this plan a greater combination of gas works has been proposed. It is argued that to-day there are many smaller gas works working side by side that could very well earn better profits and operate more cheaply if they would combine carbonization and only take their respective share of the business of distribution. Such a system might save on production cost without interfering with the sphere of business of each of the individual plants. The plan has apparently been discussed seriously in English gas works and has found frequent mentioning in the press.

English gas making is undergoing just now a general period of remaking. Old standards have been thrown overboard and new standards are needed to replace the former. The times call for new ideas and new men. Incidentally, they provide for occasional cause of friction of interests.

British Authorities Clash

Gas authorities and road authorities are at loggerheads again about a condition that exists, in fact, since the laying of gas mains was authorized by the English Parliament in the year 1847. This law intends to protect both the interest of the road authorities and the gas and water works, and gives the gas works especially an equity in the location of the gas mains.

If, for instance, a gas main is disturbed by the road authorities it is up to the latter to put the main back again to its previous condition. Road authorities and gas men have frequently quarreled about this point, and others connected with the same act, and the situation is not improved by the fact that both are often members of one and the same city corporation.

With the coming of the electric trolley service in England the situation has become still more complicated. The laying of the rails often makes necessary the widening of the streets, and when the street plan is ready it is found then that the trolley line runs right across a manhole of the gas main.

The gas authorities have the right to location, and the road authorities must make the change.

The road authorities claim now that they alone have the superior control about the roads and everything beneath and above it, and want the gas works to dispense with the rights vested in them by the act of 1847.

The gas works, on the other hand, claim that present road building is making mains more and more costly. It was an easy matter to reach a gas main through a macadam or cobblestone street surface, but it is not as easy if a cement covering has to be broken through, and the cost of making the repair is vastly increased by the higher cost of constructing such surfaces, as it falls to the lot of the gas works to put the road surface back in its original condition. It is now proposed that a new law be made and the gas works suggest that it take care of the situation as existing to-day.

Gas Prices Rise All Over Europe

It is a peculiar fact that Europe, while it has had comparatively cheap gas during the war, is now called upon to pay very heavily for it when peace has actually returned. During the war prices were held down by artificial means. Since the signing of peace, however, many of the restrictions upon prices have been withdrawn, and the gas works find themselves faced by a rapid increase in cost for materials, labor and overhead. For a while, it seems, the gas plants were reticent to do the obvious as they feared most likely the competition of electricity in the lighting field.

This danger, however, has been removed, as the electrical works have probably witnessed an even more pronounced increase in operation cost. So one after the other of the European gas works has added to its rates. Increases sometimes have been very heavy, especially where prices had been exceptionally low during the war.

To prevent the new rates working unnecessary hardship upon the consumers sliding scales have been intro-

(*Continued on page* 387.)

British Fuel Research Board Already Accumulating Much Data on Low Temperature Carbonization

The Aim Is to Get the Utmost Out of the Nation's Coal Resources—Possibilities of Gas Industry and Coking Industry Not Being Overlooked

In a report by the Fuel Research Board, signed by Sir George Beilby, F.R.S., director of the board, and covering the work done during the years 1918 and 1919, which has been made to the Department of Scientific and Industrial Research, and which was issued this week from the Stationery Office (price 1s. 6d. net), it is stated in the introductory paragraphs that from the outset the board has aimed at a scheme of research based upon a statesmanlike view of the fuel question as it concerns the nation at large. Great stress has been laid on the importance of regarding the question as one which may involve the replacement of tens of millions of tons of coal, at present burned in the raw state, by the products of carbonization of this coal—gas, oils and coke—in which the potential thermal units are in a higher state of availability and are therefore more valuable for special purposes. It has also been insisted that the replacement to any adequate extent of raw coal by the products of its carbonization must depend on the solution of technical and economic problems in ways which would justify their application on an enormous scale. The established position of the two great carbonization industries—the manufacture of metallurgical coke and the manufacture of coal gas—has been kept in view, and the important part which these industries ought to take in the fuel developments of the future has not been ignored or underrated.

There are, however, important considerations which cannot be ignored in dealing with the wider problems of the replacement of raw coal by other forms of fuel. Gas and coke making are industries established with the primary object of supplying these products for definite purposes to assured bodies of consumers. Both industries, it may be assumed, will naturally develop and expand on somewhat their present lines and will continue to find wider markets for their principal products and by-products. Outside the fields covered by these industries, however, there are less known territories which are open for exploration. One of these is the carbonization of coal at temperatures much below those used in the coke and gas making industries. For many years individual explorers have been making expeditions into this new territory; but the time has come when the solution of the fuel problems of the future appears to require that a more highly organized expedition should be sent out into this new region, with more adequate resources and with wider aims than were within the reach of the earlier explorers.

Immediate Need of Fuel Control on Works

The views of the board on this subject are greatly influenced by two leading considerations—the development of an important home source of fuel oil for the navy and the pressing need for a smokeless solid fuel for domestic and industrial purposes. In furtherance of these aims a scheme of research, requiring for its experimental development a fuel research station of an entirely new type, was decided upon, but with no intention of ignoring or making light of the existing mass of knowledge and experience on the economical use of fuel, or that the adoption of the scheme could be taken by users of fuel as an excuse for holding back from giving effect in their daily practice to the best existing knowledge.

It cannot be too strongly urged that the establishment in every large works of an organized fuel control is the only sound foundation on which to build more revolutionary or further-reaching methods of fuel economy. It is hardly necessary to say that this is not urged as the first step toward economy because of any lack of belief on the part of the Fuel Research Board in the future of wider developments in the more scientific use of fuel, but because on the one hand substantial savings in the consumption of coal will at once result from the general adoption of fuel control under existing conditions, while, on the other hand, none of the wider developments can be permanently and efficiently carried out without the previous establishment of this control.

As regard future fuel developments of a far-reaching character, reference must be made to two important considerations which arise out of the present situation. Even those who are most in touch with these developments have not yet had time to work out the probable effect on them of the permanent increase in the price of coal. One ton of good coal burned under the ideal conditions of the calorimeter should give about 30,000,000 B.t.u. With coal costing 30s. per ton, the cost of a million thermal units is therefore 1s. It is obvious that the economics of the more elaborate methods for the preparation and use of coal must now be scrutinized from the point of view of the enhanced cost of the thermal unit at its source—the coal.

Any process for the preparation of gaseous or liquid fuel necessarily involves the sacrifice of a proportion of the thirty million thermal units. In some cases this sacrifice amounts to as much as one-third, or ten million units. With coal at 30s. the sacrifice amounts, therefore, to 10s. per ton, and the process, to be economically sound, must show advantages which are at least equivalent to this loss. When coal could be bought for 9s. per ton the corresponding sacrifice was only 3s. Even if the prices of the by-products of carbonization and gasification were raised to and maintained at correspondingly higher figures, it does not follow that the enhanced cost of the thermal units sacrificed would be met. The in-

crease in rates of wages, in the capital costs for erection of new plant and in the revenue charges for its maintenance are factors of equal importance.

It follows from these considerations that, in any practical program for fuel economy, the first place ought to be assigned to the putting in order without loss of time, by the consumers themselves, of a system of control which will insure that a stop shall be put to gross waste, and that the existing appliances and known methods are worked to the best advantage. There is no doubt that in the majority of industrial undertakings a reduction of from 5 per cent to 20 per cent could be secured within a year at a relatively trifling expenditure on wages and small alterations of apparatus. In one case known to us a saving of 30 per cent on the fuel consumption was effected during the past year merely by the application of more perfect control.

Of the wider schemes for the more scientific use of fuel, much is already known which may profoundly affect the consumption of coal. In coke making in its association with the iron and steel industry, as well as in undertakings for the supply of town gas and electricity, great economies may be introduced. From their very magnitude, however, these schemes can only very gradually tell on the national coal consumption; and it would be most unfortunate if any sanguine views as to their ultimate potentialities were to lead consumers to neglect the immediate duty of at once putting the fuel consumption of their works on a more economical basis by the organization of proper control within each of these works, as well as at the administrative headquarters of each concern. Even so modest a saving as 5 per cent on an annual consumption of 100,000,000 tons of coal would, at present prices, amount to a saving of from five to eight millions sterling.

Smokeless Solid Fuel—Oil for the Navy

Reference is made to experiments carried out by Sir George Beilby in Glasgow prior to 1914 on the production of smokeless solid fuels for domestic purposes, and in this connection the report says that the Fuel Research Board is satisfied that under the new conditions of coal production and prices an outlet for low-temperature coke on a sufficiently large scale, and at remunerative prices, is likely to be found in the supply of a smokeless solid fuel for domestic and industrial purposes.

Dealing with the production of liquid fuel for the navy the board summarizes the present position as follows:

If bituminous coal is to become an important source of home supplies of fuel oil for the navy and mercantile marine, tens of millions of tons per annum of coal, which is at present burned in the raw state, would need to be subjected to a preliminary process of carbonization, and thereby split up into gaseous, liquid and solid fuels, which collectively would be used to replace this raw coal for the purposes for which it is at present consumed.

Broadly, there are three methods of carbonization which have to be considered. These are:

1. The gas works process as carried out in horizontal or vertical retorts at temperatures ranging from 1,000 to 1,300 deg. Cent.

2. The coke works process as carried out in recovery ovens at temperatures from 1,200 to 1,300 deg. Cent.

3. The process in which temperatures much lower than those in 1 and 2 are employed.

As regards 1 and 2 as now existing the production of fuel oil is so small that it cannot be seriously considered. It is therefore the carbonization processes they employ and not the industries themselves that must be taken into account.

In this connection it is noted that the present movement is all in the direction of obtaining the highest possible proportion of the total thermal units of the coal in the form of gas, which can be distributed to the ordinary consumers. In other words, the gas maker is aiming at doing an increasing business in the distribution of thermal units in the form of gas on a smaller consumption of coal per million thermal units distributed. No development, therefore, of the gas industry on the lines of the present process of carbonization at 1,000 to 1,300 deg. Cent. will help toward the production of fuel oil for the navy.

Whether either the gas works or the coke works form of carbonization at 1,000 to 1,300 deg. Cent. could, under certain conditions, be used as an alternative to carbonization at much lower temperatures in any broad scheme for the replacement of coal at present burned in the raw state is a question which will not be lost sight of.

Pioneering Work of Research Station

It was recognized that the real pioneering work of the Research Station would have the best prospects of success if the undivided attention of the experimental staff could be concentrated on the new and untried elements of the problems with which they would have to deal, and it is believed that ample facilities have been secured by the layout and equipment of the station. In the pioneering work on carbonization many forms of apparatus may have to be tried and rejected before an industrial unit of a thoroughly practical character can be evolved, and in the layout of the station due provision has been made so that the alteration or replacement of this type of apparatus can be carried out without interfering with the more permanent plant.

The steps in the carbonization inquiry will be:

1. To obtain exact knowledge as to the quantities and qualities of all the products resulting from the carbonization of suitable coals over a considerable range of temperatures.

2. To obtain exact knowledge as to the physical and mechanical conditions which influence the carbonization of various types of coal under prescribed conditions of time, temperature and mass.

3. To evolve a form of apparatus which is mechanically as well as economically sound. To this end a study must be made of the behavior of materials of construction, including cast iron and steel, under continuous working at various temperatures.

Having ascertained the quantities and qualities of all the products which result from the carbonization of various types of coal, the economical disposal of these products will open up a further vista of pioneering work.

Layout of Station

The site on which the station is erected is a strip of land about 250 ft. wide by 900 ft. long, which is bounded along its whole length by the embankment of the main siding from the South Eastern Railway into the works of the South Metropolitan Gas Company at East Greenwich.

The coal from the railway wagons is discharged into shoots leading to crushing machines, and the crushed coal is received in small wagons on a narrow-gauge line on the ground level. These small wagons are passed over a weighing machine and on to an elevator, by which they are raised to the high-level distributing system. This system, combined with the coal-receiving department, is the main artery of the whole station. By its means the small wagons are run at a height of 47 ft. above the ground on a narrow-gauge line, which crosses the station at right angles to the main sidings. Within the main building, and on either side of this line, are a series of hoppers, each capable of holding about 30 tons of coal or an equivalent volume of coke. These hoppers discharge their contents from their lower ends into the various pieces of apparatus in the main station in which coal or coke is to be treated; e. g., carbonizing plant, gas producers, briquetting plant, steam boilers. The receiving department is roofed over, so that from the time the railway wagons are pushed off the turntable on the station siding the coal to be experimented with is under cover.

The receiving, crushing, weighing, elevating and distributing systems are all within the main building, and are under glazed roofing. The carbonizing machines and retorts, the gas producers, the briquetting apparatus and the steam boilers are also within the main building, so that the experimental work of the station can be carried on night and day in complete independence of the weather conditions out-of-doors. Further, to insure for the workers a healthy atmospheric environment, a complete system of ventilation by means of electric fans has been installed in the main building.

The coal-receiving and high-level distributing system being the main artery of the station, the buildings are designed so that they can at any time be doubled by extending them across the site to its north boundary, the high-level distributing line being also continued to this point. On the ground level, and immediately under the high-level distributing system, is a narrow-gauge line for small wagons, by which the coke or char is returned to the elevator, where it is weighed before being taken up to the high-level hoppers. From the appropriate hoppers it can be supplied to the steam boilers, to gas producers or to briquetting plant.

In combination the high-level and low-level systems supply a complete means for the reception, preparation and weighing of 20 to 30 tons of coal per day, for its distribution to the carbonizing or other apparatus in which it is to be treated, and for the accurate weighing of the coke or char and its redistribution in accurately determined quantities to the apparatus in which it is to be further dealt with or for direct sale. The experimental work of the station is thus founded on the regular and accurate measuring and recording of the weight of the coal, and of the principal product of its carbonization, the coke.

The analysis of each coal which passes through the station is added to the permanent registry which is kept in the survey department. The survey department is provided with maps of each of the coal-mining districts of Great Britain. On these maps every working coal pit will be numbered and marked, so that all samples sent to the station and all bulk samples passed through for experimental purposes can be definitely located and registered accordingly. Whenever possible, vertical sections of the strata in each district at as many points as possible will be obtained, so that the samples received may be located vertically as well as horizontally.

Water Gas as Works Fuel

The next in order of the fundamentals of the station is the supply of fuel gas for the heating of retorts and carbonizing apparatus generally, and for use in experimental furnaces. For the fundamental fuel of the station water gas has been adopted and a water-gas producer of the Humphreys and Glasgow type has been installed. But while water gas is to be the standard fuel gas used in the station, arrangements can at any time be made for its replacement by other fuel gases of either lower or higher calorific value. There is provided an abundant supply of air at constant pressure and under direct measurement, and it therefore becomes possible and easy to draw up accurate thermal balance sheets for almost any type of operation or apparatus.

It is intended that the station shall supply engineers, metallurgists and chemists in charge of manufacturing operations with trustworthy data on the production and use of heat, which will enable these experts to check the efficiency of existing methods, or, when designing new forms of apparatus, to calculate the units of heat actually required under the best practical conditions. While the general layout of the station would lend itself to the handling of relatively large quantities of coal per day, the maximum unit scale which has been in mind from the outset has been from 20 to 30 tons of coal or coke per day; but a great deal of the most useful work can be done on a considerably smaller scale than this.

Electricity has been adopted as the motive power for the station. A 100-hp. gas engine and dynamo have been installed and a complete distribution system has been fitted up so that electromotors can be used in any part of the station. As a standby to the gas engine a set of Diesel engines and dynamo are being installed. A further standby is being provided by a storage battery of 120 cells, the primary use of which will be to supply large currents at low voltages for use in the laboratories. For the maintenance of a steady supply of steam throughout the station, a Cochrane boiler has been installed; and for the more serious evaporation tests with different kinds of fuel, a water-tube boiler. In addition to the low-pressure air supply for combustion purposes, high-pressure air is supplied for the blowing of oils and liquors from measuring tanks to store tanks.

For the carbonization experiments two pieces of apparatus have already been installed.

One of these is for the carbonization of coal at temperatures ranging from 500 to 600 deg. Cent. The other is a setting of four Glover-West continuous vertical retorts, estimated to carbonize 10 tons

of coal per day. A third apparatus for carbonization at 500 to 600 deg. Cent. has been erected at the maker's works, and its mechanical working has been tested at ordinary temperatures. The completion of this apparatus is being held up in order that effect may be given to the fuller knowledge of the behavior of different types of coal during carbonization at temperatures from 500 to 600 deg. Cent., which is being obtained by the experimental work at the station.

Much time during the past two years has been devoted by the director and Mr. Burton (chief designing engineer to the South Metropolitan Gas Company) to the design of an apparatus for carbonization at low temperatures. The two forms which are referred to above are regarded as only the first steps in this development; but there is no doubt that with these forms all the data as to the products to be obtained from any given coal at any given temperature up to 600 deg. Cent. will be obtained with a certainty which has never yet been reached on a steady working scale. Not only the exact quantities of the products, gas, petrol, oils, ammonia and coke, will be obtained, but the qualities of these products will be tested and ascertained, and their commercial value can be assessed.

In laying out the station for experimental work on coal carbonization and its products, it was recognized as of the first importance that the apparatus for the collection of the volatile products and their measurement should be as perfect as possible in the light of the best modern gas works practice. The plant as laid down is fitted to deal with the gases and products from 10 tons of coal per day, carbonized at high temperatures in continuous vertical retorts, or from 20 tons of coal per day carbonized at low temperatures in any form of apparatus which may be designed and erected for this purpose.

A set of Diesel engines with a dynamo has been lent by the Admiralty, and is at present being fitted up in the machine shop. This engine will act as a standby to the gas engine which supplies the electric current used in the station. It will also be utilized for experimental work on fuel oils.

Laboratories—Low-Temperature Carbonizing

The laboratories were fitted up under the direction of their chief, Dr. Thomas Gray. They comprise a routine laboratory and balance room, a research laboratory, a balance room and a liquid air room, and a physics laboratory, with dark rooms for photometry and photography.

For the low-temperature experiments a setting of nine steel retorts has been erected.

By means of a common main the nine retorts are connected to the full-scale condensers, exhausters, meters, scrubbers, purifiers and gas holders. Provision has, however, been made for the isolation of any one of the retorts and its connection to a small condensing and metering installation for the collection and measurement of gas, liquor and oil. With this arrangement the behavior of coal in charges of from 2 to 3 cwt. can be tested under large-scale conditions as regard the heating and the disposal of crushed and graded coal in layers of any thickness. The resulting gas, oils and coke, therefore, represent the products which would be obtained under definite conditions on a large scale, and are produced in sufficient quantity to enable their burning and other qualities to be tested.

More than fifty trial carbonizations have been carried out, and valuable data are accumulating almost too rapidly, in view of the very limited number of the available scientific staff. The preparation of the coke in the form of a smokeless domestic fuel, which will be sufficiently strong to stand the rough handling of transport while retaining its excellent qualities as a fuel, is receiving the closest attention, and is, indeed, being dealt with as a question of the first importance. In this direction encouraging results have already been obtained, and arrangements are now being made for the testing of this fuel in domestic grates, both under scientific supervision and under ordinary conditions.

Vertical Retorts

Toward the end of October last the setting of vertical retorts was sufficiently advanced to allow a beginning to be made in heating it up. The setting is fired by water gas, the air necessary for its combustion being supplied under positive pressure.

To meet these conditions an entirely new design for preheating the air has been evolved, and the regulation of the gas supply is also on new lines. It is therefore to be expected that at the outset some time will have to be spent in working out the conditions necessary for the regular and easy control of this heating system, and in making any alterations in it which may be found necessary. No attempt will be made to put the retorts into commission as a carbonizing unit till the heating arrangements have been thoroughly proved.

When this stage is reached the unit will be run on the steady production of town gas, measured quantities of steam being introduced at the lower ends of the retorts. In this way it is expected that data will be obtained from which accurate thermal balance sheets can be drawn up for different amounts of steam and for different temperature conditions. To insure that the weight of steam entering the retorts is accurately measured, a small gas-fired steam boiler is being installed for the exclusive use of the retorts. The gas produced will pass through a meter on its way to one of the station gas holders, and its composition and calorific value will be regularly determined.

As the heating of the vertical retorts is carried out in seven horizontal stages, the temperature grade in the vertical column from top to bottom can be varied at will, and the effect of these variations on the output of gas and on the qualities and quantities of the gas, tar, ammonia and coke produced can be determined, while the actual consumption of thermal units in the operation will be ascertained.

Gas Standards

The recommendation that the existing system of charging the consumer for the volume of gas of a certain nominal illuminating or calorific value which passes through this meter should be replaced by one in which he is charged directly for the potential thermal units he receives, was met by the argument that, as the majority of gas undertakings had adopted a

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American Gas Engineering Journal

SIXTY-FIRST YEAR

Published Weekly by AMERICAN GAS LIGHT JOURNAL, INC., 150 Nassau Street, New York, N. Y.

ELBERT P. CALLENDER, Pres. S. G. KRAKE, Vice-Pres. FREDERICK A. SOUTHWORTH, Sec'y-Treas.

EUGENE C. MILES, Editor

Subscription $3.00 per year, including postage in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada, $4.00; foreign, $5.00—Single Copies, 10 cents

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As the Journal Views It

Temptation to Indifference in the Sales Department

If the gas industry comes through the period in which it is still in the midst of with sales organizations even worthy of the name it will be a remarkable achievement in management.

From a point of maximum sales enthusiasm, when the commercial man was the biggest thing in the industry and its pampered idol, we have passed through stages wherein we tossed him ruthlessly out as if he were junk rather than a human being, wherein we begrudgingly held on to him on the assumption we would some time again need him, wherein we restrained and discouraged him and even that wherein we would rather not have him produce than have him produce.

The present stage is one in which of its own accord we seem to get more business than we care to handle. In too many cases the difference between costs and selling price has balanced so hard against us that each extra cubic foot sold represents literally an augmented loss.

We are haunted by the specter of a plant rapidly being loaded to its ultimate capacity and the impossibility of attracting capital to extend it.

The gas salesman is a hindrance rather than a help in the solution of the problems that now confront many. If a number of managements do not actually view with alarm any productive ability on his part, they at least are not in the least interested or enthused with his successes and triumphs.

There is a prospect that many capable commercial men might be actually "chilled" away from the gas industry. There is a possibility that some com-

panies in desperation might close their eyes to reason and repeat the folly of the early days of adjusting to war conditions.

Neither of these must happen. The commercial man is a most essential cog in the gas company machine. He is the privately owned gas company's strongest bulwark against municipal ownership, for he gives that service which municipally operated plants have failed signally to supply.

To-day it may not seem that we can to the full utilize the salesman's services. But to-morrow the need of them may be acute, for the conditions that restrain us from going after business as we used to go after it are artificially erected barriers that must soon be toppled over from the weight of their own unreason. And a good gas commercial man cannot be developed in a day.

We have too few of them yet in our ranks as it is. Do not let us make the mistake of sacrificing these few.

Think Independently

There are all sorts of "helps" provided these days, innumerable agencies and devices to relieve the individual of that painful task—independent mental exertion.

It would be asinine to decry the value of these helps—who wants to sit down and figure what a dollar at compound interest will amount to seventeen years hence when he has but to turn to Kent and have it in the instant?—but "helps" should be so used that one does not become slavish in his dependence upon them.

We read how Manager Blank overcame a general feeling of hostility and got his consumers themselves urging higher rates for the gas company. Perhaps we have a similar problem. Perhaps by following Manager Blank's methods to the letter we can accomplish what he has accomplished. But, if only for the sake of mental discipline, wouldn't it be better that we take Manager Blank's story only as a suggestion—not as a formula?

Gas journals illustrate window displays. They are attractive, of course. Reproduced just as they are they will be just as attractive in our window as they were in their original setting. But there is nothing in the world that cannot be better. Let us take the illustrated display simply as a basis; then incorporate at least one or two ideas of our own. We might make a better display. At the least we will avoid ossifying our creative instinct.

This world's rewards go to the originator, few to the reproducer. Certain "helps" may be employed to advantage. Depending on "helps" exclusively kills individuality. There is reason in all things. Indulgence in "helps" should be particularly guided by reason.

Expensive Practice "Making Things Do"

If the extra expense due to retaining obsolete or practically worn-out equipment in service could be confined to paper differences in cost of operation maybe, in these days of high costs of new equipment and uncertainties, there might be some reason in the practice of working the plant to the last fringe.

But there is the effect on the workers' morale.

The belt that really should be replaced is going to have to be stopped so many times, however careful the operator, for patching and fixing up. But operating a piece of equipment in such conditions engenders a feeling of disgust and a spirit of don't care in the workman that makes the patching and fixing up a haphazard proposition that stays fixed just half so long as a properly done job should, thus necessitating an even more frequent stopping than the state of the equipment should of its own accord require.

"Making things do" is a demoralizingly expensive expedient that should be avoided even at times when replacements have attained the price levels they now have.

Utilizing Waste Heat

According to an article in *Zeitung fur Dampfkessel und Maschinenbetrieb*, it is thought possible to save 25,000,000 tons of coal per annum in Germany by comparatively simple modifications of existing plants. Figures are given to show that Germany tipped 9,000,000 tons per annum of low-grade fuel upon waste dumps during the war. Great importance is attached to the use of gas from coke ovens, and it is stated that large gas engines of 1,000 kw. and upward return their cost in two years when worked with these waste gases. It is time that blast furnace gases were brought into use. There are also many furnaces used for other operations where utilization of the waste gases has not been attempted. In the zinc furnaces of Upper Silesia an annual saving of 800,000 tons of coal is effected by utilizing waste gases, though 20 per cent of the heat is all that is secured.

Actual Commercial Use of Oil from Shale

The first commercial use of oil produced from shale will be made this spring by an arrangement now completed by the local county highway board and the Catlin Shale Products Company, Elko, Nev. The shale company has agreed to supply engine distillate for the operation of the county's sixteen motor trucks and two caterpillar tractors. The county will build a road to the Catlin plant, as this highway will be in constant use. The Catlin company is prepared to deliver this product immediately, and the shale distillate will be in general use in this part of the country as fast as the present plant is able to supply the demand.

Candor on Part of Gas Company Holds Public Good-Will in Face of All Efforts at Burrowing Under

(*Continued from page* 378.)

The Deputy Commissioner from this borough, Mr. Morgan Donnelly, takes the ground that the companies must comply with his order calling for extensions, forgetful of the maxim that you cannot get blood out of stone. It is incomprehensible that the city should take the attitude of denying a corporation the right to increase its rate in the light of the abnormal conditions prevalent in the industrial and business world. It recognizes the justice of the demands of firemen, policemen, street cleaners and school teachers for higher wages, but a corporation apparently, in its eyes, has no rights and no justice on its side.

Perhaps the editorial which told the story of the plight of the Kings County Lighting Company most fully was the one published in the New York *Sun* on March 8 headed:

A CHICKEN COMES HOME TO ROOST

The buyers of public service are generally apathetic over the economic woes of the companies. So long as gas, electricity, telephone service and transportation are supplied at the old rates the customer is likely to adopt an "I should worry" attitude toward the corporations' pleas, deserving or otherwise, for more money.

Now, in Brooklyn, a lean chicken has come home to roost. The Kings County Lighting Company informs builders in several booming parts of the borough that it cannot put gas in any houses they may build. It is losing $1,500 a week at the 80-cent rate and it does not intend to lose any more than that if it can help it.

Even if the company was willing to make and sell gas at a loss it could not enlarge a losing business. No investor is going to lend money for the extension of a public service system which cannot make a profit at its present prices.

Real estate owners, builders, labor and prospective tenants may begin to look at the public service problem from a more intimate viewpoint.

Mr. Elsman continually impressed his consumers with the fact that it was not the desire of his company to withhold service, but that the entire situation was brought about through unscrupulous politicians who were attempting to further their own selfish interests despite the desires and wishes of the community at large.

One of the strongest points which Mr. Elsman used was the fact that he considered his company and, in fact, all public utility companies as servants of their consumers, as well as having as great, if not greater, responsibility than municipal and State officials who were elected. The very frankness of this statement, it seemed, swept aside all opposition and cemented the friendly relations between company and consumers so much so, that those who sought to discredit the company were left without an audience.

It was something new to those officeholders to find that the public appreciated frankness and also facts, and also that the public would be guided by those facts. Hollow statements, which in the past had been sufficient to allay public unrest, proved futile in the Kings County Lighting Company case for mere assertions, that "we will force the company to take on any and all who may apply to be supplied," were met with this statement: "Tell us how and force will not be necessary."

Efforts to becloud the issue also were met, not by the company, but by those who were vitally interested and who desired only one thing—service and that immediately.

European Gas Industry Organizes Coal Supply

(*Continued from page* 380.)

duced. An interesting example is that where a small city has based its new rates upon the earning capacity of the consumer.

The highest rate per unit in this case is 15 cents. Lower rates, however, are granted to consumers having an annual income of less than $1,700, and still less will have to be paid by consumers with an income of less than $900. Whether such a plan would work in our own country is questionable; that it is feasible in England, however, is shown by the fact that physicians in England are in the habit of basing their fees on the rent paid by the patient.

Interesting facts as to the present extent and standing of the French gas industry are given in a paper read by Monsieur Rouland before the Societe Technique de l'Industrie du Gaz en France. It appears that more than $340,000,000 are invested to-day in the French gas industry, and that 16,500,000 persons are supplied with gas in 1,500 places. The French industry has suffered heavily during the war. The loss of the Paris gas works, for instance, amounts to $15,000,000 alone.

When coal became short during the war, "heroic" efforts were made to save the situation, and gas works were shut down in great numbers, sometimes as many as 150 by one order. During July last year, 131 gas works serving cities between 5,000 and 25,000 inhabitants remained shut.

Coal was poor through the war, and especially the French coal did not come up to muster. Now it is expected that American coal will help to relieve the shortage in some quarters.

The French gas industry took full part in the production of chemicals, and the following figures show what has been done in this respect. The production ranges from benzole to the manufacture of shells. The Paris Gas Company supplied 7,005 tons of prepared phenol, 7,599 tons of naphthalene, 245,546 tons of prepared tars, 9,406 tons of light oils, 2,917 tons of benzole from tar, and 11,935 tons of benzole from gas, 45,246 tons of sulphate of ammonia, 1,140,000 tons of coke, and 19,650 tons of spent purifying material for making poison gas.

Coke was distributed by the General Coke Committee, and the coke organization was so perfect that 43,000 tons of coke could be spared for the American army.

Managers Want More

Coal, equipment and labor are not the only cost factors that are going up in Europe just now. After labor has found its compensation, management is asking for a fair share. The managers and officials of the gas works of Europe have silently suffered during the war. When labor asked more, when materials increased in price, management could not very well ask to increase the load upon the production cost of the plants. Shareholders were ready to point to the rapid increase in cost and to explain their inability to pay more to the

officials. So the officials have not been benefited in the matter of wages, but they wish to be considered now. In Germany industrial officials have formed trade unions to support higher salary demands, and also the French professional organizations have taken up the matter.

Now England is joining and the English gas engineering press contains letters of complaint about the insufficient payment of the officials of the gas works.

It seems that considerable increases will have to be made in the salaries of gas-work managers and other officials in Europe to bring these salaries more in bearing with present living conditions. Also there is to be considered the very important problem of attracting first-class men to the gas industry. The European gas industry stands at an important point of its carrier, it cannot hope to prosper with the assistance of anything but the best qualified officials.

British Fuel Research Board Already Accumulating Much Data on Low Temperature Carbonization

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calorific standard, the consumer was already in effect paying for the gas he received on a calorific basis of B.t.u. per cubic foot. It was argued that the proposed change of system was a mere piece of arithmetical juggling which would do the consumer no good, while it would entail unnecessary complication in the accounting between the undertaking and its consumers. This argument was dismissed by the board for what they considered sound reasons. They had before them abundant evidence that the present method of charging lent itself only too readily to the systematic delivery of gas much below the stipulated calorific value, so that, though the consumer in many cases did not receive the thermal units to which he was entitled, he still had to pay for the cubic feet of gas which had passed through his meter.

The recognized methods of testing laid down in the Acts of Parliament provide no effective remedy for this state of things. Under these regulations the tests may be quite intermittent in character, and notice has to be given by the gas examiner to the gas undertaking of the exact day and hour at which he proposes to make an official test of the gas passing through the official testing station. So long as the gas is found under these prearranged occasions to be of the required value, the consumer has no legal ground for complaint. The board have had before them clear evidence in certain cases that only during the brief period of the prearranged test was the gas up to the required standard, and that at all other times it was much below that standard.

It was further argued that even if the principle of the new system were adopted, this need not necessarily involve the replacement in the bills of the consumer of the present volume unit of 1,000 cu. ft. by the thermal unit of 100,000 B.t.u. The gas meter would in any case remain the measuring instrument; so long, therefore, as the consumer is guaranteed that the gas passing through his hands contains not less than the stipulated number of potential B.t.u., nothing would be gained by the adoption of the new unit in his bills. The change of unit, it was argued, would simply add to the confusion which already exists in the minds of the ordinary consumer, who, it was said, would neither understand nor appreciate the supposed advantages of the new method.

In reply to these arguments it was pointed out that even to the more intelligent consumers the present system of charging is so illogical and so far removed from ordinary business methods of buying and selling that they may be excused if they have come to regard the situation as one which they must accept

The Consumer and B.t.u.

Our reply to these arguments is that we have throughout felt confident that the simplicity and fairness of the new method of charging will appeal to an increasing number of consumers once it is realized by them that their future transactions with the gas undertakings will be based upon the purchase and sale of a perfectly definite commodity; namely, potential heat units in the form of gas.

Not only as it affects the immediate question of gas supply, but from the wider aspects of fuel economy, it cannot be too earnestly or too often impressed on the general public that the potential heat energy in every form of fuel is a definite quantity which can be measured in terms of a unit of which they may easily grasp the significance.

Under the new system of charging by thermal units the gas undertakings will be free to set their own standards of calorific value. They will thus be in a position to adopt any methods of working which will result in the production and distribution of thermal units in the form of gas at the lowest price. As the consumer will only be called to pay for the thermal units he receives, and as his appliances will be adjusted free of charge for the safe and efficient burning of the quality of gas he receives, the standard adopted by the undertaking will not affect him. For the gas undertaking the problem is not quite so simple; for it is not merely the maker of the gas but is also its distributer. Distribution requires the provision of gas holders for storage, and mains and boosters for the conveyance of the gas over long distances and to districts at different levels. Probably not less than one-third of the total cost of the gas as it is delivered at the consumer's meter is due to these distribution charges, and this proportion will be directly increased by any lowering of the calorific value of the gas. For the storage and distribution of a gas of 400 B.t.u. larger gas holders and mains will be needed than for a gas of 500 B.t.u., and the cost on this item will be increased. Unless, therefore, the thermal units in the 400 B.t.u. gas are produced so much more cheaply than in the 500 B.t.u. gas that the extra distribution costs are more than covered, nothing will be gained by a reduction of the standard to the lower figure. The great gain for the gas industry under the new system will be that no undue legislative restrictions will limit them in their development of the most economical production of thermal units in the form of gas. That there is still great scope for this development is evident from the fact that, according to present practice, only about 21 to 24 per cent of the total potential thermal units of the coal are sold in the form of gas.

Gas Stoves for the Canning Season

Golden Rule, St. Paul, Minn., Holds Canning Session—Attractive Window Display a Most Effective Salesman

By WILLIAM BLISS STODDARD

Seldom has there been an opportunity to push the sale of gas appliances as during the present season. Despite the big fruit crops the price remains abnormally high, due to labor troubles, high wages, and lack of transportation facilities—and the housewives, especially in the rural districts, are going to can, can, can. But the modern housewife is not going to be content with antiquated methods. Farmers and all skilled labor have been well paid and the men should be made to see, if they have not already been properly instructed by their wives and daughters, that the housewife should have the same improved machinery for doing her work that he demands for his own. The chief of these is the gas range, which eliminates the dirt and heat and uneven cooking.

The Golden Rule, St. Paul, Minn., in playing up its gas ranges made use of all the different advertising agencies. Their advertisement in the newspaper caught the eye at once:

YOU DON'T REAP WITH A SCYTHE

You don't read by a tallow dip.
You don't write with a quill pen.

Why, Then, Do You Expect Your Wife to Bake and Preserve with a Hot, Dirty Coal Stove?

The canning season is approaching—If you have not done so already, now is the time to see to it that she has a gas range with which to do the heavy work of preserving and canning.

SURPRISE HER WITH A BLANK GAS STOVE

In the store was a room devoted entirely to gas stoves and ranges, including gas plates and little laundry stoves. The walls were hung with aluminum and enamelware, and set on tables were glass fruit jars and glasses. The room was approached by a vine-colored pergola in which sat a young woman—a wax model—peeling a dishpan full of red apples. In the center of the room was a gas range above which hung a sign: "Carefully Built for Careful Buyers."

EVERYTHING FOR CANNING

Several weeks prior to the canning season they sent out to all their patrons an invitation, duplicated, of course, but with the name and address inserted on the typewriter in order to give it a personal note:

Dear Madam:—

You are cordially invited to attend our three days' canning session. Each afternoon from 2:00 to 4:00 Mrs. Simonson, the canning expert, will demonstrate the most efficient and economical method of preserving fruits and vegetables. Ask her any questions you desire—she will be glad to help you with any of your canning problems.

Don't forget the dates—July 20, 21, 22.

A large section of the stove department was given over to the demonstration, seats being provided for all and, in addition, several small tables for those who desired to take notes. While not every firm could afford to employ a professional demonstrator, practically all high schools now have a domestic science teacher, whose services could be supplied at a moderate cost. Such a demonstrator would be more successful than a stranger as, knowing her personally, the guests would not feel the hesitancy in asking questions, such as they might otherwise do. Of course, the demonstrator would be given to understand that it was not purely an altruistic affair and that in the course of her remarks she would be expected to refer as much as possible to the gas stoves and their superiority over other fuel for canning and cooking of all sorts. It would not be a bad idea, either, to have a hot water heater installed, and attention called to it from time to time as the most convenient source from which plenty of hot water for bathing and cleaning could be had.

To go back to The Golden Rule, you may be sure that they did not overlook their most effective salesman—the show window. The window was fitted up to represent a modern, light, airy, sanitary kitchen. On the floor, on tables and on the wall were canning materials of all descriptions, while the center of attraction was a big gas range, in front of which stood a young woman in neat blue and white house dress.

The Los Angeles Gas Appliance Company, Los Angeles, Cal., was another firm that pushed gas stoves very energetically at the beginning of the season. The clever way in which they punned on the brand of range they were advertising—the Jewel—and the logic with which they backed up their statement of its efficiency caused the demonstration of ranges to be widely attended.

HAVE YOU A JEWEL IN YOUR FAMILY?

Can you imagine anything more pleasing than a happy family at dinner time? Daddy is

ATTRACTIVE WINDOW DISPLAY OF THE KING FURNITURE COMPANY, SAN ANTONIO, TEXAS

home from work and the children, forgetful for the moment of their hunger, romp to the table, tugging at their beloved father. All are seated and the tidy housewife, beaming with anticipation, brings in the dinner. A sizzling roast, browned to the queen's taste; baked potatoes, popping from their skins; vegetables steaming with appetizing aroma, and muffins such as only mother can make.

Father, scenting the tasty flavors, puts his arm around the little mother and says: "Dearie, you are a JEWEL."

"Yes, daddy," she replies, "but I have a JEWEL in my kitchen —the gas range you bought me yesterday. It's a pleasure to get dinner on such a range. I'm so glad we've got rid of that dinky stove we used so long."

JEWEL GAS RANGES are equipped with all the latest labor-saving devices, easy to keep clean, and practically non-rusting.

Visit our demonstrator this week and be convinced that a gas range will make you a more comfortable home.

LOS ANGELES GAS APPLIANCE COMPANY

They backed up this ad with a pulling window display, the center of attraction being one of these efficient ranges.

And speaking of featuring ranges of certain brands, the King Furniture Company, San Antonio, Texas, gained many customers by the neat little note they sent to a large list of their patrons, especially those in rural districts:

Dear Madam:—

Have you not sometimes daydreamed about a stove that would do your cooking for you, while you rested or played or shopped, or perhaps motored miles from home?

Your dream stove is here.

It is a handsome gas range that can be used in every respect like the ordinary gas range, and in addition it has a spacious automatic cooking oven which will bake, roast, boil, steam and stew without any attention on your part. We can prove absolutely that it will pay for itself in the food and fuel saved.

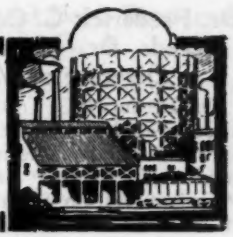
Come down and attend the demonstration given each afternoon this week.

Yours very truly,

KING FURNITURE CO.

The window that backed up this personal advertising showed one of the Acorn ranges, beside which stood a motherly looking figure, and at whose feet was a card: "The Automatic Acorn Range. A new way to cut living expenses. Come in and see it demonstrated." In anticipation of Fourth of July a large flag was hung in the background. During the demonstration biscuits and pies were made on one day, and on another the canning of fruit was demonstrated, while of chief interest to all were the cereals, beans and meats cooked on the automatic heater.

NEWS OF THE GAS INDUSTRY



Master Gilbert's Final Report Favors Consolidated

That 80-cent gas is confiscatory and $1 gas practically inevitable are the conclusions drawn in his final report as submitted to the United States Court by Special Master Abraham S. Gilbert, who has spent more than a year investigating the affairs of the Consolidated Gas Company.

In his original report of his findings Special Master Gilbert, in a 16,000-page report, held that 80-cent gas was confiscatory and unconstitutional and that $1 gas was coming. He reviewed at length the holdings and capitalization of the company, and reported that it was impossible for that concern to make fair profits at the 80-cent rate.

In his final report filed he reiterates his findings for the company, and repeats that the property of the company is being confiscated every day.

"Every day that this continues, assuming the correctness of my conclusion, is an injustice to the complainant company," reads Mr. Gilbert's report. After confirming his former and preliminary report that covered more than 16,000 pages of typewritten matter, and in which he stated that not only was the 80-cent gas rate confiscatory but unconstitutional, Mr. Gilbert in his final report takes up the history of the Consolidated Company from the time of its origin in 1884 right down to 1919, when he was appointed by Judge Mayer to make the investigation.

"The complainant company began business in November, 1884, and in April, 1900, the capital stock was increased to $54,595,200. In July of that year it was further increased to $80,000,000. To-day it has an authorized capital stock of $125,000,000, of which there is issued an outstanding $100,000,000. It has also issued and outstanding 7 per cent convertible bonds to the extent of $25,000,000.

"In the years between 1884 and 1918 the complainant company acquired by purchase practically all the stock of the New York Edison, doing an electric light and power business; the United Electric Light & Power Company, doing a similar business; the Brush Electric Company, the New Amsterdam Gas Company, the Standard Gas Light Company and other gas and electric companies.

"The Central Union and the New Amsterdam companies each own about one-half of the stock of the Northern Union Gas Company. The complainant company also owns more than 56 per cent of the stock of the New York Mutual Gas Light Company. It also owns all of the stock of the Astoria Light, Heat & Power Company.

"I find the total amount on which the complainant company is entitled to have a fair return computed, including working capital, to be $74,854,351.14. On the basis of my finding of a net profit of not more than 4.73 cents per 1,000 cu. ft. of gas sold and approximately 19,000,000,000 cu. ft. of sales for the year 1920, the complainant company's return, if any, will be not more than $898,700, representing not more than 1.2 per cent upon the fair value of the property used and needed, or amounting to a fair and reasonable return upon no more than $11,233,750 of the fair value of the property used and needed.

"The reasonable and proper rate of return upon the capital invested in the plants, distributing system, properties and business of the complainant company I find to be not less than 8 per cent per annum, amounting to $5,988,048.09, calculated upon the fair value of the property used and needed."

It is also found that the Consolidated Gas Company has complied with the legal provisions concerning standards of candle-power and pressure. The master recommends that it be decreed that the law of 1906, in so far as it restricts the selling price of gas in Manhattan to 80 cents per 1,000 cu. ft., is illegal and void, because it is in contravention of the constitutional inhibition of confiscatory legislation.

Long Gas Controversy Now Settled

A gas controversy involving more than one-quarter million dollars, which has been in the courts for ten years, was settled May 1 when the Kansas City Gas Company and the Wyandotte County Gas Company, the distributing companies of Greater Kansas City, Mo., paid to the Kansas Natural Gas Company $372,274.26 in settlement of all claims.

The settlement ends ten years of litigation over disputed contract points, receivership and court orders, with Doherty interests on one side and the two distributing companies on the other.

The settlement was based on the refusal of the local companies to pay the 28 cents at the city gates ordered by Judge Wilbur Booth, of the Federal Court of St. Paul, who for the last two years has had charge of the gas tangle. The order for 28 cents was made Aug. 25, 1919, and the amount paid represented the difference between the amount due the pipe line company under this order and the amount that would have been due under contracts.

J. W. Dana, representing the local companies, and Robert Stone, representing the Kansas Natural, drew up the stipulation of settlement.

"We want gas next winter and are willing to do our share to get it," said C. W. Green, vice-president and general manager of the two local companies. "The agreement means that the public will not have its gas supply endangered by the dispute over the price of gas at the city gates. We have paid the money in the settlement with a view to assisting in preparing for an adequate supply of gas next winter, and to end the litigation."

Dr. Frederick G. Cottrell Succeeds Dr. Manning as Director of Mines

Dr. Frederick G. Cottrell, assistant director of the Bureau of Mines, Department of the Interior, has been nominated director of mines by President Wilson to take the place of Dr. Van. H. Manning, resigned.

Frederick G. Cottrell, chemist, metallurgist, inventor, was born in Oakland, Cal., Jan. 10, 1877. He attended school in Oakland and matriculated at the University of California in 1892. As a university student he gave especial attention to science, particularly chemistry. After graduation in 1896, with the degree of Bachelor of Science, he was a Le Conte fellow at the university in 1896-1897 and taught chemistry at the Oakland High School in 1897-1900. Then he went to Europe where in 1901 and 1902 he studied at the University of Berlin and the University of Leipzig, receiving from the latter the degrees of Master of Arts and Doctor of Philosophy, 1902. On his return to this country in 1902, he was appointed instructor in physical chemistry at the University of California, and in 1906 was appointed assistant professor, holding this position until 1911. While at the university Dr. Cottrell's chief contributions to science were researches relating to the electrical precipitation of fume and fine particles suspended in the gases of smelter, blast furnace or cement works flues, and he finally evolved what is known as the Cottrell process for this purpose. This invention was first utilized at the Selby smelter in California for removing fumes from the waste gases of a sulphuric acid plant at the smelter, thereby abating a nuisance that threatened to necessitate shutting down the works. Subsequently this electrical precipitation process was installed at other smelters to remove fume and solid particles contained in the escaping gases, and it was also successfully used at cement plants, notably near Riverside, Cal., to prevent the dust from the calcining kilns from damaging nearby orange groves and vegetation. To-day the Cottrell process of fume and dust removal is in world-wide use, and is recovering materials heretofore wasted to the value of many thousands of dollars. One of the latest installations is at a large smelting plant in Japan; while the largest installation is at the Anaconda smelter, Anaconda, Mont. Dr. Cottrell, in a desire to encourage scientific research, turned over his extensive patent rights to a non-dividend paying corporation, known as the Research Corporation, a body formed for that purpose. A fundamental requirement in the incorporation is that all net profits shall be devoted to the interests of scientific research.

In 1911 when Dr. J. A. Holmes, the first director of the Bureau of Mines, was serving as a member of commissions appointed by the Government to study alleged damages from smoke and fumes from the Selby and the Anaconda smelters, and the Bureau of Mines was investigating at length the smelter-smoke problem, Dr. Cottrell, because of his scientific attainments and his special knowledge of metallurgical problems, was appointed chief physical chemist in the bureau. In 1914 he was appointed chief chemist, in 1916 chief metallurgist, and in 1919 assistant director.

Aside from his work on smelter smoke Dr. Cottrell has been deeply interested in and intimately connected with work on the separation and purification of gases by liquefaction and fractional distillation. During the World War and subsequently thereto the development of the Norton or Bureau of Mines process for the recovery of helium from natural gas has been his special care, and it was chiefly through his efforts that a plant for recovering helium (a rare non-inflammable gas) on a large scale for military aeronautics has been erected near Petrolia, Texas.

Dr. Cottrell is a member of the American Chemical Society, Mining and Metallurgical Society of America, the American Electrochemical Society and the American Institute of Mining and Metallurgical Engineers. He was awarded the Perkin medal by the New York Section of the Society of Chemical Industry in 1919 in recognition of his work on electrical precipitation.

THE BATTLE CREEK GAS COMPANY, Battle Creek, Mich., has announced that its price for gas will go up three cents a hundred feet June 1. The company explains that it made but 3 per cent on its investment last year, and with $85,000 to be expended during 1920 and $200,000 during 1921 for improvements, it cannot do business on the present rates.

Flatbush Gas Company Fights 80-Cent Gas Rate

The Flatbush Gas Company, of Brooklyn, N. Y., which distributes gas bought of the Brooklyn Union Gas Company to 31,993 consumers in Brooklyn, has begun an action in the Federal Court to set aside the 80-cent gas law. It states that it distributes 1,037,169,048 cu. ft. of gas a year, that it pays the Brooklyn Union Company 65 cents a 1,000 cu. ft. for it, and that its operating expenses exceeded its income during the last year by $146,165.

During the current year, it says, it will have to pay the Brooklyn Union Company 16 cents more for the gas, and that its taxes and other expenses would bring the cost to more than 99 cents. The company states that if it charges no more than the statutory amount for gas it would be subjected to penalties aggregating $383,916,000.

Deputy Public Service Commissioner Barrett has denied an application of the Woodhaven Gas Light Company for a reconsideration of an order of the commission directing the company to extend its mains to Locust Manor, Locust Lane, South Jamaica Place, Springfield and Laurelton in Queens. The company, a subsidiary of the Brooklyn Union Gas Company, stated that it was financially unable to comply with the order, and could not borrow the money to make the extensions.

No More Gas for Indiana Industrial Plants

An order which virtually marks the passing of natural gas for use by large Hoosier industrial consumers has been issued by the Public Service Commission.

The commission authorized the Central Indiana Gas Company, Muncie, Ind., to provide gas for its large industrial consumers only when the company has a surplus above domestic needs. The company was authorized also to increase the price of gas to 50 cents a 1,000 cu. ft. for gas in excess of 100,000 cu. ft. a month.

Industrial plants at Muncie, Hartford City, Fairmount and Gas City are interested. The gas is piped from the West Virginia field. It is diminishing and is to be conserved for home purposes. The fight for such conservation has been going on for a long time. The region is the last in Indiana to use gas in any great quantity for industrial purposes.

Illinois Gas Association Names Committees for 1920

Committees of the Illinois Gas Association for 1920 were made up at a meeting of the directors held April 21. Attention to many of the problems confronting the industry is provided for the scope of work to be performed by the various committees.

Of these one of the most important is the Joint Committee on Public Policy. Its membership is composed of three representatives of the Illinois Gas Association and three each from the other two State utility organizations—the Electric and the Electric Traction Associations. Of this committee R. V. Prather will be the secretary. Questions of policy as it implied in the title of the committee will be considered by it. Very wide ground must necessarily be covered. It is expected that numerous meetings will be held.

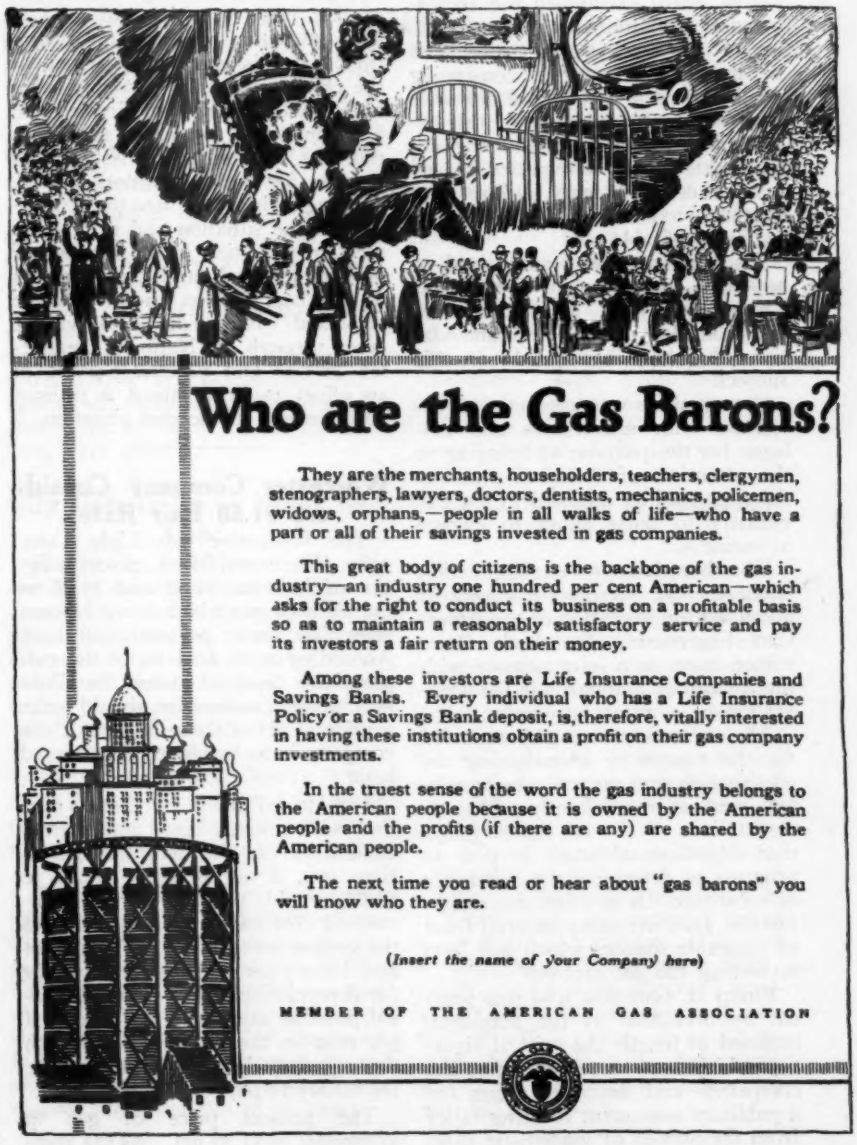
Another important committee will devote its work to co-operative research. It will act in harmony with the State Geological Survey and the United States Bureau of Mines in investigating purification and carbonization problems. The quality of oil now used and its betterment and the possibilities of Illinois coal in gas making will be other subjects of inquiry. By-products of gas plants will be closely investigated especially the possible number of these and the markets for them. In this latter field one object aimed at is to find sources of larger demand for the products of the stripping plants operated by some gas companies in Illinois. This committee expects to print a bulletin at regular intervals reporting its progress.

It was decided that the annual meeting of 1921 should be a joint convention of the Illinois Gas Association and the State Electric and State Electric Traction Associations and that it should extend over three days. The meeting will be held in Chicago and in connection with it there will be a large manufacturers' exhibit in which space is already being solicited. A convention committee was appointed and also an exhibit committee.

The association which for some years has maintained two gas engineering scholarships at the University of Illinois increased its allowance to $600 annually for each. These scholarships will be filled this year in the usual fashion. Companies that are members of the association will send in nominations—limited in number—and from this list the University of Illinois will make the two appointments. The course is two years. The study has been considerably widened and the graduate should at the end of the period be well equipped.

Advertisement No. 3 Prepared by A. G. A.

The accompanying illustration is the third of a series of twelve advertisements being prepared by the American Gas Association for the use of gas companies in their publicity campaigns. The copy can be changed to suit the requirements of the individual company. The art design can be used over and over again. Proof of advertisement complete with matrix $3, and can be secured from the American Gas Association, 130 East Fifteenth Street, New York City.


Who are the Gas Barons?
They are the merchants, householders, teachers, clergymen, stenographers, lawyers, doctors, dentists, mechanics, policemen, widows, orphans,—people in all walks of life—who have a part or all of their savings invested in gas companies.
This great body of citizens is the backbone of the gas industry—an industry one hundred per cent American—which asks for the right to conduct its business on a profitable basis so as to maintain a reasonably satisfactory service and pay its investors a fair return on their money.
Among these investors are Life Insurance Companies and Savings Banks. Every individual who has a Life Insurance Policy or a Savings Bank deposit, is, therefore, vitally interested in having these institutions obtain a profit on their gas company investments.
In the truest sense of the word the gas industry belongs to the American people because it is owned by the American people and the profits (if there are any) are shared by the American people.
The next time you read or hear about "gas barons" you will know who they are.
(Insert the name of your Company here)
MEMBER OF THE AMERICAN GAS ASSOCIATION

Philip H. Gadsden Addresses Executive Board Meeting of A. G. A.

The April meeting of the Executive Board of the American Gas Association, held at association headquarters on the 28th of the month was well attended. In addition to the members of the board there were present by invitation, Randal Morgan, Philip H. Gadsden and A. P. Lathrop.

One holding company, twenty-five gas companies, nine manufacturing companies and ninety-nine individuals were approved for election to membership.

The board sanctioned the recommendation of the managing committee of the commercial section that the merchandizing of gas consuming appliances is a proper and desirable function of the members of this association, whose merchandizing departments should be regarded as permanent establishments and so conducted as to be not only self-supporting but profitable.

The president was authorized to appoint a committee on "Methods of Charging for Gas," which committee will consider various recommendations that have been made on this subject.

A committee was appointed to cooperate with universities and colleges for the purpose of bringing to the attention of technical students the opportunities afforded by the gas industry to those about to engage in business.

The board approved the action taken by the secretary-manager in accepting the invitation of the American Engineering Standards Committee to act as a joint sponsor with the Bureau of Standards in the preparation of a gas safety code.

The secretary-manager reported for the committee investigating the oil situation that several sub-committees were at work jointly with representatives of the oil industry and that experimental work is now in progress to determine the suitability of substitute oils in water gas manufacture. Data are being secured from all available sources which will help in solving the oil problem.

Philip H. Gadsden, who was present by invitation of the president, outlined at length the critical situation which now confronts many gas companies and described plans for a publicity movement to bring relief from the burden of inadequate rates and the unprecedented costs of essential materials used in gas manufacture. Randal Morgan and Mr. Lathrop, also present at president's invitation, concurred in Mr. Gadsden's suggestion, following which the board authorized the president to call a meeting in New York on May 26 of the executives of all gas companies, in order that a definite plan of procedure be approved and put into effect.

Another serious situation brought to the attention of the board by Mr. Brown was the enormous advances in the price of gas coal, as well as the difficulty of securing deliveries. It was revealed that the large export shipments were taking out of the market large quantities of coal at such attractive prices to the operators that this was probably one of the chief reasons for a supply being unavailable. The board directed that a resolution be forwarded to the authorities controlling the issuance of permits for the exportation of coal, drawing their attention to the seriousness of the situation and urging immediate reduction in the number of permits released until the condition of the coal market should become stabilized. Immediate steps will be taken through the National Committee on Gas and Electric Service in an effort to bring about a prompt improvement in the coal situation.

Worcester Company Considers $1.60 Fair Rate

The Worcester Gas Light Company, Worcester, Mass., places a figure of between $1.60 and $1.65 as the price of gas which it would consider fair under present conditions. According to its analysis of the corporation's financial status, the Public Utilities Commission should make a price at about these figures, if the company is to be placed on a sound basis.

President Francis H. Dewey says that with present costs and normal conditions of weather, transportation, etc., a net price of $1.60 to $1.65 would provide for the increased cost of manufacture due to the greater costs of coal, oil, supplies and labor; for a reasonable charge for depreciation, which is not at present possible, and for a dividend of 4 per cent on the capital stock, which the company has not been earning the money to pay.

The present price of gas in Worcester is $1.30 net. As the commission invariably fixes the price in round numbers, the expectation, based on the premises of the gas company, is for $1.60 or $1.65 gas in the forthcoming decision of the commission, which, however, will not be received for some time.

Gen. Morris Schaff, of Cambridge, Mass., for many years a member of the Massachusetts Gas & Electric Light Commission, and John J. Kirkpatrick, manager of the Holyoke Municipal Gas & Light Works, have been engaged as expert advisors in regard to the petition of the Worcester company, and they will appear before the Public Utilities Commission at the State House, Boston, to hear the presentation of the case in behalf of the gas light company and they will ask for a continuation of the hearing to enable the city to go into the matter thoroughly before presenting the city's side.

Massachusetts Gas Earnings Decline

The combined net earnings available for dividends of the subsidiary companies of the Massachusetts Gas Companies for March were $267,555, a decrease of $32,754, or 10.91 per cent compared with the corresponding month a year ago. For the quarter ended March 31 last, the total earnings were $812,945, compared with $918,819 in the corresponding period in 1919 and $1,067,612 in 1918.

Gas Plant to Be Sold at Auction

The property of the Bath (N. Y.) Gas Company will be disposed of at public auction June 2. The sale will be under virtue of the foreclosure of a mortgage in interest of the bondholders of the gas company. The property to be sold includes ten miles of gas mains and the company's plant and equipment.

Texas Company Brings In Big Gasser

The Texas Company's well on the Thomas Carnes survey in Panola County, Texas, near the Louisiana State line, has come in blowing wild as a gasser, with production estimated at 20,000,000 to 40,000,000 cu. ft. of dry gas.

Lone Star Gas Company Refuses City's Offer

The Lone Star Gas Company will not accept the proposal made by the city of Dallas, Texas, in its letter to the Dallas Gas Company, a copy of which was sent to the Lone Star Gas Company.

Commissioners McGee, Appel and Reppert maintain the stand they took several days ago to the effect that they are willing to increase the price in the event the Lone Star Gas Company will bring the gas into Dallas, and are willing to dismiss the suit now pending if it interferes with the company securing the necessary funds to make the proposed extensions to the West Texas and Southern Oklahoma fields and carry out the drilling program to which the company made commitments in their letter to the Dallas Gas Company.

That the situation is more serious than many think and the probabilities for securing additional gas for next winter are vague, is the statement of officials of the Lone Star Gas Company. The decrease in the fields from which Dallas' supply of gas came last year has been so great that not more than one-fourth as much gas as was available last winter, will be available this year, and unless the new fields are connected with the present line the outlook for gas is very unpromising, according to gas officials.

Contracts Awarded

THE U. G. I. CONTRACTING COMPANY, of Philadelphia, Pa., has been awarded the following contracts for carbureted water gas apparatus:

One 11-ft. set for the Adirondack Light & Power Company, of Schenectady, N. Y.

One 11-ft. set for the Georgia Railway & Power Company, at Atlanta, Ga.

One 11-ft. set for the City of Richmond, Va.

The U. G. I. automatic control will form part of the Richmond set.

THE NEW BEDFORD GAS AND EDISON LIGHT COMPANY, of New Bedford, Mass., recently decided to enlarge the manufacturing capacity of its plant, and to this end has awarded the U. G. I. Contracting Company, of Philadelphia, Pa., a contract to install one 11-ft. cone top set of carbureted water gas apparatus.

The set will be equipped with the U. G. I. automatic control.

THE U. G. I. CONTRACTING COMPANY, of Philadelphia, Pa., is engaged on the remodeling of an 8-ft. 6-in. set for the Westchester Lighting Company at its Tarrytown (N. Y.) plant.

The same company is also remodeling water gas apparatus of the St. Paul Gas Light Company at St. Paul, Minn., and for the Portland Gas Company, Portland, Me.

THE EMPIRE COKE COMPANY, of Geneva, N. Y., has recently awarded the contract to the U. G. I. Contracting Company, of Philadelphia, Pa., for two 9-ft. blue gas sets, and other auxiliary apparatus.

These sets will be equipped with the U. G. I. automatic controls, which have so successfully demonstrated their ability to produce the highest efficiencies and best results on both blue gas sets and carbureted water gas apparatus.

Brockton Gas Employees Hold Annual Banquet

The annual banquet, entertainment and dance of the Brockton Gas Light Company Employees' Association was held Monday evening, April 26.

George H. Priest, manager of the company, and William P. Morton, ex-president of the association, spoke. A. A. Wilbur, assistant manager of the company, and William P. Jodoin, an ex-officer in the association, were present.

City Gets Delay in Kings Gas Case

The city of Brooklyn, N. Y., succeeded in gaining a delay in filing an amended answer to the proposed appeal to the Appellate Division by the Kings County Gas & Lighting Company from the decision of Supreme Court Justice Greenbaum, who on April 20 declared the 80-cent gas law not to be confiscatory, as alleged by the appellant, when Justice Whittaker granted the motion of Corporation Counsel O'Brien for an extension of sixty days to file the answer.

QUINCY GAS LIGHT COMPANY, Quincy, Mass., a subsidiary of the Massachusetts Gas Company, has received the approval of the Public Utilities Commission for the issuance of $175,000 of additional capital stock, consisting of 1,750 shares of $100 par. The proceeds will be applied to the cost of additions and permanent improvements to its plant.

Oppose Gas Company Stock Issue

The city of Boston, through Assistant Corporation Counsel Joseph P. Lyons, appeared before the department of public utilities in opposition to a request of the East Boston Gas Company that it be permitted to issue $425,000 new capital stock.

Mr. Lyons pointed out that the company was authorized a year ago to issue new stock to the amount of $300,000, but failed to. Robert H. Holt, counsel for the company, maintained it is permitted to capitalize at replacement value, less depreciation. He presented an appraisal of approximately $2,700,000. Outstanding stock is $575,000.

Chuctanunda Gas Light Company Elects Officers

At the annual meeting of the stockholders of the Chuctanunda Gas Light Company, Amsterdam, N. Y., the following officers and directors were elected for the ensuing year:

Officers. — Hon. John Sanford, chairman of board; William H. Cooper, president; C. D. Stewart, vice-president; F. S. Van Derveer, treasurer; D. D. Cassidy, secretary; O. A. Merchant, Jr., general manager.

Directors.—Hon. John Sanford, William H. Cooper, C. D. Stewart, F. S. Van Derveer, D. D. Cassidy, James Voorhees, A. R. Conover.

U. G. I. Increase in Stock Approved

Stockholders of United Gas Improvement Company, Philadelphia, Pa., at annual meeting, approved proposed issue of 300,000 shares of 7 per cent cumulative preferred stock, par $50. Of the $15,000,000 preferred authorized, it is proposed to issue but $6,103,000 now. United Gas Improvement stockholders are to be given the first opportunity of subscribing to the preferred stock at par.

THE CENTRAL COUNTIES GAS CO., of Visalia, Cal., has issued a report of its financial condition at the end of last year. Assets were $442,810.20; capital stock, $89,255; funded debt, $20,400; net operating revenue, $8,203.31; gross corporate income, $8,378.33; total deductions, $21,201.05; net corporate loss for year, $12,822.72.

New 16-inch Gas Mains to Be Constructed in Cicero District

Construction work is expected to start immediately on a new 16-in. cast iron gas main in Cicero, Ind. It will be a 5-lb. pressure line and fulfill the important function of supplying industrial gas customers in the important and growing territory in which it is located.

The joints will be leaded and in addition fitted with leak clamps of special design which have the effect of assisting to hold the lead in place.

The capacity of the line will be about 250,000 cu. ft. an hour and its purpose, as stated, will be to take care of industrial customers in Cicero. The line is expected to be in operation early in the summer. It may be mentioned that it is exceeded in size only by the 24-in. and 20-in. mains in Evanston, Ind.

Many varied uses for gas fuel have been developed in the great industrial plants in both the western and southern parts of the territory. The same in fact is true of concerns in all sections of the manufacturing zone which surrounds Chicago on every side except the east and which is supplied with gas by the Public Service Company of Northern Illinois. In some plants as many as thirty different shop processes are carried out with gas fuel, the latter in numerous instances utilizing other kinds of fuel previously regarded as alone suitable.

Fifty-Year Franchise Given Texas Company

The city council of Pecos, Texas, has granted an amendment to the franchise of the Pecos Light & Ice Company, the local concern which is already furnishing light in Pecos, Texas, permitting it to furnish water and gas. The amendment grants these rights for fifty years from the date of the franchise and no consideration is recited therein. The amended franchise reads in part:

Be it ordained by the council of the town of Pecos City, Texas:

That a franchise and right is hereby given and granted to the Pecos Light & Ice Company, a corporation duly incorporated under the laws of the State of Texas and its successors and assigns to erect, construct, maintain and operate a system for supplying gas, a water system and a system of electric lights in the town of Pecos City, Texas, for the purpose of furnishing gas, water, electric current to said town and the inhabitants thereof.

Gas Company Enjoined from Collecting Higher Rates

An injunction has been granted by Hon. Alonzo G. Hinchley, Justice of the Supreme Court of Wyoming County, N. Y., restraining the Pavilion Natural Gas Company, of Le Roy, N. Y. from collecting gas rentals at the new rates of 75 cents until said rates are determined reasonable by the Public Service Commission, and in case of failure to pay at the new rates, restraining it from removing the gas meters.

Pending a definite settlement of the price of gas, the company is accepting "payments on account" where the price of 40 cents per 1,000 is offered to them. Receipts have been given showing it to be a payment on account for the March bill.

Long Island Company Offers Bond Pending Rate Controversy

The Nassau & Suffolk Lighting Company, of Long Island, N. Y., has proposed to give a bond to cover consumers in its territory, agreeing to return to each customer paying the company's proposed increased rate for gas from Feb. 20, when the company's $1.75 rate was proposed as effective, reimbursement with interest depending on the rate determined by the Public Service Commission, Second District, as a reasonable rate. This offer covered all municipalities served, including Freeport, Rockville Center, Hempstead and Baldwin, L. I.

Gas Plants of Three States Face Bankruptcy

Declaring that the increased costs of oil, fuel and labor threaten the existence and operation of the gas plants of Iowa, Nebraska and South Dakota, the Iowa District Gas Association at its recent annual convention held at Des Moines, Iowa, passed a resolution calling upon communities served with gas in these States to grant their respective utilities substantial increases in gas rates. Bankruptcy and discontinuance of service is the only alternative, the resolution states.

May Meeting of Illuminating Engineering Society

The May meeting of the Illuminating Engineering Society was held in the Engineering Society Building, New York City, on May 13. A paper entitled "Illuminating Engineering from the Sidelines," was read by R. W. Shenton, of Cleveland, Ohio.

Personal Notes

THOMAS RICE, manager of the Gage County Gas, Light & Power Company, of Beatrice, Nebr., has been transferred to Omaha where he will have charge of important work in the office of the Continental Gas & Electric Company which controls a number of gas and electric plants in Nebraska and adjoining States. Mr. Rice came to Beatrice in 1906 and helped build the present gas plant. Later he went to Canada and returned to Beatrice in 1910. He fought against many odds and reached a solution of many problems to the mutual satisfaction of both the company and the public.

T. B. GENAY, district manager of the Northern Indiana Gas & Electric Company in the Peru-Wabash District, will resign the first of June. He, however, will remain in the employ of the company and will be on duty at the general offices of the U. G. I. Contracting Company, at Philadelphia, Pa.

R. L. WARNER, who for a time immediately preceding the receivership was vice-president "in charge of public relations" of the United States Railways, has been elected a director of the St. Louis County Gas Company and the St. Louis Electric Light & Power Company, succeeding J. T. Mortimer, of New York, resigned.

PORTO RICO GAS COMPANY.—Judge Mayer has appointed Rufus M. Redding and Herbert W. Brown ancillary receivers of the assets in this jurisdiction of the Porto Rico Gas Company, Porto Rico, in $2,000 bond in a foreclosure suit brought by the Guaranty Trust Company, of New York, as trustee. The suit is brought in connection with a $5,000,000 issue of sinking fund gold bonds.

Chicago Will Fight Gas Rate Increase

Donald R. Richberg, special counsel for the city of Chicago in gas litigation, said: "The city will demand full explanation as to why it costs so much more to make gas in the Peoples company plants."

According to evidence which will be presented by attorneys for the city when the case comes up for hearing, the Peoples Gas Light & Coke Company, of Chicago, Ill., now holds contracts with other concerns by which it will secure one-fourth of all the gas it sells at an average cost of 27 cents per 1,000 cu. ft. According to the contracts, this gas is turned into the Chicago mains at the price specified, and the only additional cost to the Peoples company is that of collecting the money from the consumers.

"The annual profit to the Peoples company from the gas thus resold at more than four times its cost," said Mr. Richberg, "is estimated at $5,000,000.

"When other concerns can make gas and sell at a profit to the Peoples company at from 10 to 55 cents per 1,000 cu. ft., it shows there is something radically wrong when the Peoples company claims it must charge its consumers $1.25.

"The companies that sell to the Peoples company undoubtedly figure a margin of profit over cost of production that gives them a good return on their investment. Gas conforming to the present standard and made under present-day Chicago conditions can, therefore, be made for a small fraction of even the present charge. The rest of the cost is due to the heavy obligations, many of them absolutely unjustified, which the Peoples company is carrying."

An operating profit of more than 400 per cent will be made by the Peoples Gas Light & Coke Company on one-fourth of its total output if its application to charge $1.25 per 1,000 cu. ft. of gas is granted by the State Public Utilities Commission.

To Sell Gas Plant

The West Side Gas Company, engaged in the business of selling gas in Taft and Maricopa, Cal., and Joseph McDonald, who is in the gas business in Fellows and South Taft, have applied to the Railroad Commission for authority to sell their businesses to the West Side Natural Gas Company, of Taft, Cal. The sale agreement filed with the application shows that the West Side Gas Company is to transfer its property to the corporation in exchange for 997 shares of the capital stock. The effect of the application, if granted by the commission, will be to consolidate the properties involved.

One-Dollar Gas Possible in Omaha

The report of the Omaha (Neb.) Gas Company for the first quarter of 1920, ending March 31, shows that if the city had operated the plant at $1 for 1,000 cu. ft. it would have made a net profit of $44,960, after all of the expenses and interest of 5 per cent on the $4,500,000 bond issue had been paid.

The gas company's operating revenues for this period, their report shows, totaled $392,668. Its expenses, excluding taxes, amounted to $243,228, leaving a net revenue of $149,440, the company's report shows.

If the city had operated the plant during the same period at the same expense, including the interest of 5 per cent on the bond issue, it would have made a net profit of $93,190.

This shows that the city can operate the gas plant and give the people $1 gas and still make a good profit.

A New Gas Bill System

The gas consumer of Kansas City, Mo., hereafter will not be obliged to spend long periods in line at the gas office, waiting to pay his bill. A new system to relieve the consumer of that annoyance and to relieve the gas office force of the "peak loads," has been designed, the gas company announced.

Under the new system the bills will be mailed daily, as the meters are read. The consumer will have ten days from the receipt of his bill in which to pay and receive the usual cash discount.

Thus there will be a payday every day in the month, instead of only three, as under the old system. Under the new plan fewer than three thousand bills will fall due each day. Under the old plan it was necessary to handle approximately twenty-five thousand accounts on each of the three paydays.

Santa Barbarans to Pay Increased Rate for Gas

The Southern Counties Gas Company, Santa Barbara, Cal., has been permitted to add 40 cents a 1,000 cu. ft. for gas served in Santa Barbara and vicinity by the State Railroad Commission.

In view of an application pending before the Commission for an increase of rate by the Pacific Gas & Electric Company in San Francisco and Central California, it was pointed out as a significant fact that the Commission stated in the opinion that the increased cost of oil since 1916 added 37 cents to the cost of each 1,000 cu. ft. of gas sold.

The present rate for gas in San Francisco is 85 cents a 1,000 cu. ft., and it was pointed out that a similar increase here would increase the San Francisco rate to $1.25.

The present rate in Santa Barbara is $1 a 1,000 cu. ft., and the rate for the outlying territory is $1.25.

The Commission declined to adopt a single schedule of charges for the city of Santa Barbara and the outlying territory, holding that to do so would be to "put an additional burden upon the city communities" by making them stand "the additional cost of serving the more scattered territory." This means that the outside territory will have to pay 40 cents additional to the charge of $1.25 a 1,000 now being collected, thus maintaining the difference in rates that has always prevailed.

Massachusetts Gas Companies Buy Lawrence Building

The Lawrence Building, bounded on three sides by Tremont, West and Mason Streets, Boston, Mass., and valued at $1,600,000, has been sold to the Massachusetts Gas Companies. The trustees of the Lawrence Building are William Lawrence, William C. Loring, Augustus Hemenway, Jr., and Frederic Cunningham. The property comprises 8,200 square feet of land, valued at $1,205,400, and the building, which was built only nine years ago, is assessed at $394,600. It is the intention of the Boston Consolidated Gas Company, which for sixty-five years has been at 18-24 West Street, to move to the Lawrence Building, where it will occupy the upper doors, thus affording it more commodious quarters.

Temporary Increase Granted Illinois Company

The Public Utility Commission in Springfield, Ill., has granted the petition of the Central Illinois Light Company for a temporary increase in gas rates in Peoria and Averyville, Ill. The new rate becomes effective from April 20, 1920, and, unless made permanent or extended, holds to Jan. 1, 1921. It provides for an increase of 15 cents per 1,000 ft. for the first 10,000 ft. consumed. The ruling also provides for a refund, with interest at 6 per cent, in case the temporary rate advance is not made permanent.

The old and new rates are:

NEW RATES

	Gross.	Net.
First 10,000 cu. ft...	$1.10	$1.00
Second 10,000 cu. ft.	1.05	.95
Next 30,000 cu. ft...	1,00	.90
Next 50,000 cu. ft...	.95	.85
Next 300,000 cu. ft..	.85	.75
Over 400,000 cu. ft..	.80	.70

OLD RATES

	Gross.	Net.
First 10,000 cu. ft...	$ .95	$ .85
Second 10,000 cu. ft.	.90	.80
Next 30,000 cu. ft...	.85	.75
Next 50,000 cu. ft...	.80	.70
Next 300,000 cu. ft..	.70	.60
Over 400,000 cu. ft..	.65	.55

The minimum charge per month is fixed at 25 cents.

Natural Gas Found in Seneca County

While drilling for water on the Rod and Gun Club grounds at Geneva, N. Y., natural gas was discovered at a depth of 85 ft. It has been known for many years that natural gas was to be found in this immediate section of the State, and many attempts have been made to locate it, but these attempts were never successful in finding it in any great quantity. Several years ago a local company was formed by the late W. T. Seymour and Jasper N. Hammond, and a number of wells were put down, all or nearly all of which were producers on a small scale. The company failed to strike it in large quantities and finally gave up the effort. There are many people who still believe it exists and in paying quantities in Seneca County, and that it will yet be discovered.

Hannibal Gas Plant Plans Improvements

Improvements amounting to $15,000 will be made in the plant of the Citizens' Gas Company in Hannibal, Mo., in the near future. Two new arches with six 9-ft. retorts will be installed, which will increase the output of the plant 150,000 cu. ft. of gas daily.

The plant, with these improvements, will have a total output of 300,000 ft. per day. These betterments, with labor-saving machinery for the unloading of coal, are expected to put the plant in better condition to meet the increased demands.

Gas Light Co. Expanding

The management of the Wallingford Gas Light Company, Wallingford, Conn., is looking forward to a period of industrial and commercial expansion, and work is now going on on the foundations for a new 100,000 cu. ft. gas holder. The company has already put in place at its plant a new 125-h.p. boiler, but as yet have not put it into use.

Michigan Industrial Consumers Without Gas

To protect the supply of gas for cooking and other household uses, general orders have been issued directing the discontinuance of gas service to industrial consumers at all plants of the Michigan Light Company. The order is effective immediately and involves consumers at Bay City, Saginaw, Flint and Kalamazoo, Mich.

To Abandon Natural Gas

Natural gas is to be abandoned permanently in Richmond, Ind., according to officers of the Richmond Light, Heat & Power Company, who announced that beginning Nov. 1 artificial gas will be served to patrons of the company.

The natural gas supply has been brought into Richmond from the West Virginia fields for several years, and the service for two years has been unsatisfactory.

Gas Company Opens New Office

The Danvers gas department of the Beverly (Mass.) Gas & Electric Company has opened its new office in the Ryan Block, Danvers, Mass. The new quarters give a splendid opportunity to display a full line of gas appliances.

3,000 Feet of New Line for Shelby, Ohio

The Logan Gas & Fuel Company, Lancaster, Ohio, is to build a belt line around Shelby, Ohio, and to put on many extensions in an effort to improve the city's gas service. A total of 3,000 ft. of new line is to be put in.

Grand Rapids Grant Gas Company $1.30 Rate

The City Commission has concurred in the special gas committee's recommendation giving the Grand Rapids Gas Light Company, Grand Rapids, Mich., a trial rate of $1.30 per 1,000 cu. ft. for a period of three months beginning at the expiration of the company's franchise.

"As stated, we have had a careful analysis made of the business of the company, including cost of operation," reported the committee. "This analysis shows an average of producing gas for the first three months of the current year of $1.0021. To this is added 5 cents per 1,000 ft. depreciation and a profit of 25 cents, an amount recognized throughout the country as a fair profit, making a total of $1.3021 per 1,000 cu. ft. or a flat rate of $1.30 per 1,000. In our opinion and based on this showing, such price is just and equitable to both the citizen and the company."

Under the new contract the gas company will be permitted to furnish gas of 550 B.t.u. instead of 600 as heretofore.

Explosion in Des Moines Gas Plant

One man was killed in an explosion in the engine room of the Des Moines Gas Company, Des Moines, Iowa. The explosion occurred in a part of the plant through which practically all gas for the city passes, and as a result there was no gas for industrial or domestic purposes after the accident. The cause has not been determined.

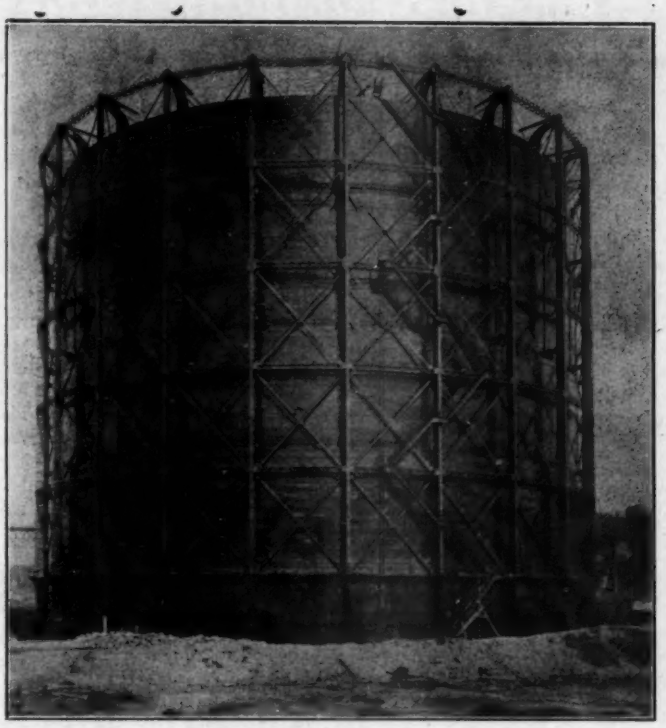
More than two hours after the accident gas was burning in the part of the plant where the explosion occurred.

BOSTON CONSOLIDATED GAS COMPANY reports output for April, 1920, was 562,527,000 cu. ft., compared with 489,602,000 cu. ft. for April, 1919, an increase of 14.9 per cent.

RITER-CONLEY CO.

PITTSBURGH, PA.

PURIFYING BOXES



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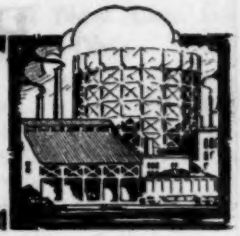

Conducted by Business Department of American Gas Engineering Journal

A Housing Box Which Permits Easy Access to Valves in Street

The S. E. T. Valve & Hydrant Company, 50 Church Street, New York, manufacture the Ideal Roadway Box with adjustable manhole top. This box is designed for housing gate valves or other apparatus in the ground, and it not only protects them but makes them accessible for operation and repairs.

Municipal authorities and highway commissions are becoming more and more reluctant in allowing newly laid pavements to be dug up soon after paving has been put down. The installation of this valve box at the time the street is being made does away with the necessity of digging up the street to make repairs to valves or to operate them. It is of special value where gas is used under high pressure.

SQUARE MODEL ROADWAY BOX

The box is a cast iron sectional housing—a complete manhole in itself—easily and quickly set up without bolts and requiring no skilled labor to install. It takes the place of the more expensive brick or concrete construction without the attendant delays of waiting for material, building of forms, and waiting for bricks or concrete to set.

Where larger housing, so workmen can enter, is required, the round model is recommended, as it provides sufficient room for working inside the top.

The square model for high pressure gas lines is of distinct advantage for providing access to the valve or other apparatus in cases of emergency and for regular inspection or repair. At the depth at which gas lines are laid it is not required that the workman shall enter the manhole, as access from the top is all that is necessary; in this case the square model box is of the right dimension to permit accessibility.

Both round and square models are built in sections of ribbed cast-iron plates, which dovetail together without the use of bolts or nuts, the lower section being supported and held in position by cast-iron base that covers the top of the valve. The whole box is completed by the addition of the cover, which in the square model is supported by a hardwood or an iron frame placed between the cover frame and the top section of the box. The hardwood frame acts as a shock absorber.

An illustrated catalog giving details will be mailed to gas companies on request.

Coal and Coke Handling Machinery for Gas Plants

The Brown Hoisting Machinery Company, of Cleveland, Ohio, recently issued a large catalog covering their entire line of machinery for handling ore, coal and other bulk materials, furnace hoists and tops, car dumpers, car pushers, bins, grab buckets, hand cranes, etc. The Brownhoist locomotive cranes are extensively used around gas plants and also for the handling of coke. These cranes are made in different sizes to meet the requirements, and are equipped with buckets for handling either coal or coke. The crane travels in both directions, has complete rotation of the boom, and the boom can be worked at various radii within the capacity of the crane. Only one man is required for operation, and he also fires the boilers if it is a steam crane.

Reversible Bostong for Handling Gas Pipe

The Walworth Manufacturing Co., Boston, Mass., have issued a general catalog No. 78, which covers their full line of brass and iron goods and tools as well as supplies for steam, water, and gas works. For gas works it covers the general line of standard service cocks, square and flat head malleable cock wrenches, gas pliers and gas fitters, augers, straps and gas hooks.

The Walworth Reversible Bostong is especially designed for handling pipe. It is equipped with a specially designed steel flat link chain. Cam action insures a positive grip and instant release when the pressure on the handle is released, so that the shifting for a new grip on the pipe or to reverse is accomplished quickly by a slight movement of the handle which makes the wrench especially valuable, when working in close quarters or in corners of trenches.

The pipe may be turned readily in either direction without removing the tong from the pipe, or unhooking the chain from the jaw, or materially shifting the jaws on the pipe.